

Management Recommendations for

Hypogymnia oceanica Goward

version 2.0

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version 2.0
SUMMARY

Species: *Hypogymnia oceanica* Goward

Taxonomic Group: Lichens (Rare Oceanic-Influenced)

ROD Components: 1,3

Other Management Status:

The Nature Conservancy Oregon State Rank 2 (imperiled because of rarity or because other factors demonstrably make it very vulnerable to extinction (extirpation) typically with 6-20 occurrences); The Nature Conservancy Global Rank 3 (rare, uncommon or threatened, but not immediately imperiled, typically with 21-100 occurrences) (Oregon Natural Heritage Program 1998); and BLM Sensitive (Oregon BLM Sensitive List 1995).

Range: *Hypogymnia oceanica* is known from about 50 sites in the range of the Northwest Forest Plan. Eight sites are in Washington, two are coastal and six are inland on the Gifford Pinchot National Forest. In Oregon, almost most half of the known sites were recently found inland on the Mt. Hood National Forest; 10 more are from other inland Oregon sites, and 13 are coastal sites. *Hypogymnia oceanica* is a Pacific Northwest endemic, ranging from southeast Alaska where it is common to Oregon, where it is rare and reaches the southern extent of its range in Jefferson County.

Specific Habitat: Habitat characteristics for this species are poorly understood. In the Coast Range, *H. oceanica* occupies mesic to moist sites, and grows in mesic western hemlock and Douglas-fir forests in the western Cascades. Sites on Mt. Hood National Forest sites are open-grown mature Pacific silver fir, where small individuals are closely appressed above the snow line on tree boles.

Threats: The major threat to *H. oceanica* is loss of sites resulting from activities that harm the local populations or their habitat, including altering microclimate and removing colonized substrate.

Management Recommendations:

- Manage known sites on federal lands by maintaining habitat, forest structure, occupied and potential suitable substrate, and microclimatic conditions required by *H. oceanica*.
- Determine the extent of local sites and habitat area with a site visit.

Information Needs:

- Determine the distribution and habitat conditions for *H. oceanica* in the range of the Northwest Forest Plan.
- Evaluate species distribution and abundance relative to land allocations to determine if the current reserve land allocations are sufficient to maintain persistence of *H. oceanica*.

Management Recommendations for *Hypogymnia oceanica*

I. NATURAL HISTORY

A. Taxonomy and Nomenclature

Hypogymnia oceanica Goward was described in 1988.

B. Species Description

1. Morphology

Hypogymnia oceanica is a small- to medium-sized, whitish to greenish-gray, foliose lichen with long, narrow, puffy, hollow lobes (Figure 1). The lower surface is black, wrinkled, and bare. Soredia are present on upper lobe surfaces at the tips and towards the thallus center. Lobe tips are brownish and often perforated.

Technical Description: Thallus foliose, rather closely appressed throughout, small to medium (5-8 cm in diameter). Lobes hollow, averaging 1.5-2.0 (3.0) mm broad, somewhat elongate, irregularly inflated, generally bearing sparse, basally constricted marginal lobules, these eventually developing into more or less perpendicular secondary lobes. Upper surface pale mineral gray to nearly white, shiny, plane to convex, smooth to becoming, in part, weakly rugose as seen from above, usually distinctly bordered by the expanded shiny, black, wrinkled lower surface. Soredia subgranular, whitish, subapical to more often distinctly laminal, arising from the dissolution of the upper cortex, either confined to small circular soralia or becoming diffuse over the entire upper surface. Medulla thin, cottony, at first white but soon darkening. Apothecia and conidiomata unknown. Cortex K+ yellow; medulla K-, C-, KC+ red, PD+ red, I- (Goward 1988).

2. Reproductive Biology

Although the species description states that sexual reproductive structures are unknown (Goward 1988), another source (McCune and Geiser 1997) state that apothecia occur uncommonly. This species also reproduces asexually by production of soredia, which could be dispersed by wind, birds or insects or other vectors. Its patchy distribution at sites where it occurs suggests that it may have dispersal or establishment limitations.

3. Ecological Roles

Very little is known about the ecology of *H. oceanica*. The ecological requirements and roles of inland populations, including those around Mt. Hood, may be very different than those of coastal populations.

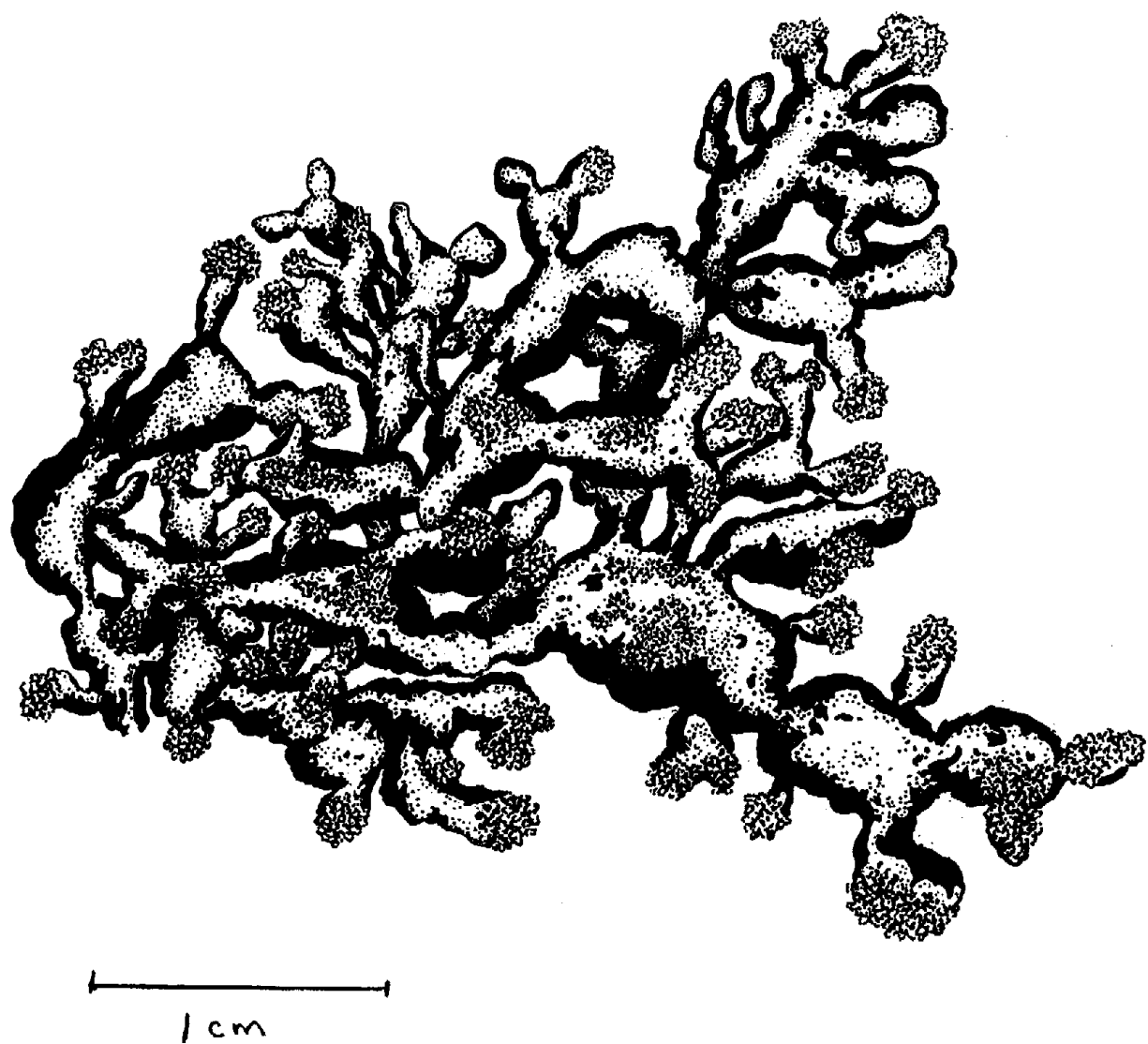


Figure 1. Line drawing of *Hypogymnia oceanica* by Alexander Mikulin.

C. Range and Known Sites

Hypogymnia oceanica is currently known from about 50 sites in the range of the Northwest Forest Plan. Only nine sites are from Washington, two near the ocean, one from Sulfur Creek Lava Flow (Mt. Baker Snoqualmie National Forest) and six on the Gifford Pinchot National Forest. In Oregon, almost half of these sites are inland on the Mt. Hood National Forest; 10 more are from other inland sites, and 13 are from coastal sites. No sites south of Jefferson County are known. Until about 1995, this species was believed to be a strictly coastal Pacific Northwest endemic, ranging from southeast Alaska where it is common (Geiser *et al.* 1998) into Oregon, where it is rare. We now know that it has a strong inland showing in the Western Cascades of Oregon, and occurs in the western Cascades of Washington as well. Our knowledge of the range of *H. oceanica* is incomplete.

D. Habitat Characteristics and Species Abundance

Hypogymnia oceanica is uncommon in the range of the northern spotted, known from about 50 sites in coastal areas and in the western Cascades of Washington and Oregon. Characteristics of these two different habitats in the range of the Northwest Forest Plan are poorly understood. It occurs in moist Sitka spruce (*Picea sitchensis*) and shore pine (*Pinus contorta*) forests along the immediate coast and in Douglas-fir (*Pseudotsuga menziesii*) and western hemlock (*Tsuga heterophylla*) forests in the Coast Range and Cascade Mountains (McCune and Geiser 1997). The Mt. Hood sites are typically rather open-grown mature Pacific silver fir (*Abies amabilis*) forests, where small individuals are often closely appressed to tree boles above the snow line. It appears to have a sparse and patchy distribution in stands where it does occur. *Hypogymnia oceanica* occurs in late-successional and old-growth stands.

On the Mt. Baker-Snoqualmie National Forest, *Hypogymnia oceanica* occurs at the Sulphur Creek Lava Flow. The mid-elevation (550-660 m; 1640-2170 ft) lava flow supports scattered live, dead, and dying subalpine fir infested with balsam woolly aphid. The stand has a dense shrub component of vine maple (*Acer circinatum*) and huckleberry (*Vaccinium* spp). The lava flow is unusual in that it supports relatively low-elevation stands of subalpine fir (*Abies lasiocarpa*) with an epiphytic lichen flora that appears to be more similar to that of Douglas-fir stands than subalpine fir in its typical, higher elevation sites (Rhoades 1981). Although precipitation is high on the lava flow, soil development is poor and the site is very well-drained.

In British Columbia, it is infrequent over conifers in open to shady coastal low elevation forests and rare in humid intermontane forests (Goward *et al.* 1994). In southeast Alaska, *H. oceanica* is coastal and common on the trunks and branches of open-grown shore pine (*Pinus contorta*) in *Sphagnum* bogs, on Sitka spruce (*Picea sitchensis*) and western hemlock (*Tsuga heterophylla*) in forested stands, and on apple (*Malus*) and alder (*Alnus*) along beach fringes (Geiser *et al.* 1998).

II. CURRENT SPECIES SITUATION

A. Why Species Is Listed Under Survey and Manage Standard and Guideline

Hypogymnia oceanica was considered at risk under the Northwest Forest Plan because of its rarity and limited distribution in the range of the northern spotted owl (USDA and USDI 1994a). At the time of the FEMAT viability ratings there was only one known population in the range of the northern spotted owl (USDA and USDI 1994a and 1994b).

B. Major Habitat and Viability Considerations

The major viability consideration for *H. oceanica* is loss of populations resulting from management activities that harm the populations or impact their habitat. It has recently been found in several timber units on the Mt. Hood National Forest.

C. Threats to the Species

Threats to *H. oceanica* are those activities that alter existing stand and microsite conditions or affect the occupied substrate. Because its distribution and habitat requirements in the range of the Northwest Forest Plan are poorly known, it is difficult to assess threats. Fire, including prescribed burns, could threaten populations of this species.

D. Distribution Relative to Land Allocations

The distribution of known sites of *H. oceanica* relative to land allocations needs to be determined. It is suggested that each administrative unit evaluate the land allocations for known sites on lands in its jurisdiction and share this information at the regional level.

III. MANAGEMENT GOALS AND OBJECTIVES

A. Management Goal for the Species

The goal for managing *H. oceanica* is to assist in maintaining species viability.

B. Objectives

Manage known sites on federal lands by maintaining habitat, forest structure, occupied and potential suitable substrate, and microclimate conditions associated with *H. oceanica*.

IV. HABITAT MANAGEMENT

A. Lessons from History

No specific lessons from history about *H. oceanica* have been identified.

B. Identifying Habitat Areas for Management

Known sites of *H. oceanica* on federal lands administered by Forest Service and BLM in the range of the Northwest Forest Plan are identified as habitat areas where these management recommendations should be implemented, especially until the distribution and habitat requirements of this species are better understood. A habitat area for management is defined as suitable habitat occupied by or adjacent to a known population.

C. Managing In Habitat Areas

- Determine the extent of local population and habitat area with a site visit.
- Manage habitat area by maintaining forest structure, occupied and potentially suitable substrate, and microclimatic conditions required by *H. oceanica*.
- Avoid prescribed burns in habitat areas where this species occurs

D. Other Management Issues and Considerations

Since the FEMAT report (USDA and USDI 1994a), an additional 50 sites have been discovered, and this species may turn out to be more common than originally thought.

V. RESEARCH, INVENTORY, AND MONITORING NEEDS

A. Data Gaps and Information Needs

The objective of this section is to identify opportunities to acquire additional information which could contribute to more effective species management. The content of this section has not been prioritized or reviewed as to how important the particular items are for species management. The inventory, research, and monitoring identified below are not required. These recommendations should be addressed by a regional coordinating body.

- Determine the distribution of *H. oceanica* in the range of the Northwest Forest Plan.
- Characterize the ecological conditions of *H. oceanica* in the range of the Northwest Forest Plan.
- Evaluate species distribution and abundance relative to land allocations to determine if the current reserve land allocations are sufficient to maintain persistence of *H. oceanica*.
- Survey potential suitable habitat at Gwynn Creek, Eel Creek Recreation Area and Sand Lake, Siuslaw National Forest; and BLM parcels adjacent to Cape Lookout, and other BLM coastal parcels for *H. oceanica*.

- Share information with state and private sectors to further activities directed at the conservation of *H. oceanica*.
- Does the species require different management in different parts of its range (e.g., inland versus coastal populations)?

B. Research Questions

- Are Mt. Hood and other inland populations genetically different from coastal populations?
- What are the rates of reproduction, dispersal and growth for *H. oceanica*?

C. Monitoring Needs and Recommendations

No monitoring needs are recommended at this time.

REFERENCES

- Geiser, L., K.L. Dillman, C. Derr and M. Stensvold. 1998. Lichens and allied fungi of southeast Alaska. pp. 201-243. In: M.G. Glenn, R.C. Harris, T. Dirig and M.S. Cole (eds.). *Lichenographia Thomsoniana: North American lichenology in Honor of John W. Thomson*. Mycotaxon Ltd., Ithaca, NY. 445 p.
- Goward, T. 1988. *Hypogymnia oceanica*, a new lichen (Ascomycotina) from the Pacific Northwest of North America. *The Bryologist* 91:229-232.
- Goward, T., B. McCune and D. Meidinger. 1994. The Lichens of British Columbia. Part 1. Foliose and Squamulose Species. British Columbia Ministry of Forests Research Program. Crown Publications Inc., Victoria, BC 181 p.
- McCune, B. and L. Geiser. 1997. Macrolichens of the Pacific Northwest. Oregon State University Press, Corvallis, OR. 386 p.
- Oregon Bureau of Land Management Sensitive List. 1995.
- Oregon Natural Heritage Program, 1998. Rare, Threatened and Endangered Plants and Animals of Oregon. Portland. 92 p.
- Rhoades, F. 1981. Biomass of epiphytic lichens and bryophytes on *Abies lasiocarpa* on a Mt. Baker lava flow, Washington. *The Bryologist* 84:39-47.
- USDA Forest Service, and USDI Bureau of Land Management. 1994a. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-Growth Related Species within the Range of the Northern Spotted Owl, Appendix A, Forest Ecosystem Management: An Ecological, Economic, and Social Assessment. Portland, OR
- USDA Forest Service and USDI Bureau of Land Management. 1994b. Final Supplemental Environmental Impact Statement on Management of Habitat for Late-Successional and Old-growth Forest Related Species Within the Range of the Northern Spotted Owl, Appendix J2: Results of Additional Species Analysis. Portland, OR 476 p.